

CLAIMS

What is claimed is:

1. A non-woven fabric comprising a plurality of entangled helically crimped asymmetric bicomponent fibers comprising a first crystallizable polyester component and a second crystallizable polyester component, said first crystallizable polyester component exhibiting a lower rate of crystallization than said second crystallizable polyester component, said fibers being characterized by a denier range of 0.5 to 6 denier, said fibers exhibiting at least 50 crimps per inch with a crimp radius of curvature of 0.2 mm or less, and wherein said fibers are preponderantly entangled with one another, and wherein further said fibers are preponderantly oriented in a well-defined plane said non-woven fabric being characterized by a bulk density of 0.2-0.4 g/cm³.
2. The non-woven fabric of Claim 1 wherein the bicomponent fibers are side-by-side bicomponent fibers.
3. The non-woven fabric of Claim 1 wherein said first crystallizable polyester component is poly(ethylene terephthalate) and said second crystallizable polyester component is poly(propylene terephthalate).
4. The non-woven fabric of Claim 1 wherein said first crystallizable polyester component is poly(propylene terephthalate) and said second crystallizable polyester component is poly(butylene terephthalate).
5. The non-woven fabric of Claim 1 wherein said first crystallizable polyester component is poly(ethylene terephthalate) and said second crystallizable polyester component is poly(butylene terephthalate).
6. The non-woven fabric of Claim 1 wherein said bicomponent fibers are predominantly staple fibers.
7. The non-woven fabric of Claim 6 wherein said first crystallizable polyester is poly(ethylene terephthalate) and said second crystallizable polyester is poly(propylene terephthalate) at a concentration ratio in the range of 70:30 to 30:70 respectively.
8. The non-woven fabric of Claim 7 wherein the concentration ratio is in the range of 60:40 to 40:60 respectively.
9. The non-woven fabric of Claim 1 wherein said bicomponent fibers are continuous.
10. The non-woven fabric of Claim 1 further characterized by an initial Young's modulus of 1.2 to 12 MPa and ultimate stretch of up to 150%.

11. A non-woven fabric comprising a plurality of entangled helically crimped side-by side staple bicomponent fibers in the range of 0.5 to 6 denier and an uncrimped length in the range of 20 to 25 millimeters comprising polyethylene terephthalate and polypropylene terephthalate at a concentration ratio in the range 60:40 to 40:60, said fibers exhibiting at least 50 crimps per inch with a crimp radius of curvature of 0.2 mm or less, and wherein said fibers are preponderantly entangled with one another, and wherein further said fibers are preponderantly oriented in a well-defined plane said non-woven fabric being characterized by a bulk density of 0.2-0.4 g/cm³, an initial Young's modulus of 1.2 to 12 MPa, and ultimate stretch of up to 150%.

12. A process for forming a non-woven fabric, the process comprising disposing a plurality of asymmetric bicomponent fibers having latent crimp in a planar array of overlapping fibers, said fibers being preponderantly oriented in the plane thereof, disposing said planar array between two constraining surfaces; heating said planar array to develop at least a portion of said latent crimp with the proviso that during at least a portion of said heating, said non-woven structure is in constraining contact with said constraining surfaces.

13. The process of Claim 12 wherein said planar array is in the form of a fibrous mat preform.

14. The process of Claim 12 wherein the bicomponent fibers are side-by-side bicomponent fibers.

15. The process of Claim 12 wherein the bicomponent fibers consist essentially of polyesters.

16. The process of Claim 12 wherein said first crystallizable polyester component is poly(ethylene terephthalate) and said second crystallizable polyester component is poly (propylene terephthalate).

17. The process of Claim 12 wherein said first crystallizable polyester component is poly(propylene terephthalate) and said second crystallizable polyester component is poly (butylene terephthalate).

18. The process of Claim 12 wherein said first crystallizable polyester component is poly(ethylene terephthalate) and said second crystallizable polyester component is poly (butylene terephthalate).

19. The process of Claim 12 further comprising the step of forming the fibrous mat preform from an aqueous slurry of floc having an average length of 3 to 25 millimeters.

20. A process for forming a non-woven fabric, the process comprising forming a fibrous mat preform from an aqueous slurry of side by side uncrimped staple bicomponent fibers having a latent crimp contraction of at 70-80%, 20-25 millimeters in length, disposing said
5 fibrous mat preform between two constraining surfaces; heating said planar array to develop at least a portion of said latent crimp with the proviso that during at least a portion of said heating, said fibrous mat preform is in constraining contact with said constraining surfaces; said bicomponent fibers comprising polyethylene terephthalate and
10 polypropylene terephthalate in a respective concentration ratio in the range of 60:40 to 40:60.